NOKIA

Mobile Phones
2.4

27.04.99

Nokia 9000i Communicator
WWW Browser Style Guide

Copyright©Nokia Mobile Phones 1999

TABLE OF CONTENTS

1. ABOUT THIS DOCUMENT 3

2. HTML CONSIDERATIONS 3

3. PAGE LAYOUT CONSIDERATIONS 3

3.1 The Text 3
3.2 Tables 4
3.3 Frames 4
3.4 Movement Within a Page 4
3.5 Hierarchy 4

4. GRAPHICS CONSIDERATIONS 4

4.1 Display Attributes 4
4.2 Data Transfer Speed Considerations 5

5. MULTIMEDIA CONSIDERATIONS 5

6. LINK CONSIDERATIONS 5

7. OTHER CONSIDERATIONS 5

8. CHECKLIST 6

8.1 Graphics 6
8.2 Text 6
8.3 HTML 3.2 DTD Commands Not supported By Communicator Browser 6
8.4 Hierarchy 7
8.5 Links 7
8.6 Usability 7
8.7 Browser Identification 7

9. REFERENCES 8

Nokia is a registered trademark of Nokia Corporation. Nokia's product names are either trademarks or registered trademarks of Nokia. Other product and company names mentioned herein are trademarks or trade names of their respective owners.

Nokia Mobile Phones operates a policy of continuous development. Therefore we reserve the right to make changes and improvements without prior notice.

Copyright©Nokia Mobile Phones 1999

1. ABOUT THIS DOCUMENT

This is a design guide for content providers seeking to produce usable WWW pages with HTML for the Nokia 9000i Communicator browser. This guide outlines some of the basic considerations that should be taken into account when designing for the Nokia 9000i Communicator.

A basic understanding of the words WWW, HTML, HTTP, browser, page, screen, pixel and bit is necessary to benefit from this document. Additional reference material is listed at the end of this guide.

This guide is not a general HTML style guide [Lynch, 1995], a general communicator design guide [GO, 1992] nor an HTML syntax check [Halsoft, 1995]. For more information on these subjects, refer to the references section at the end of this document. If a conflict between the suggestions of this document and other referenced documents arises, this document should be given preference.

2. HTML CONSIDERATIONS

The basic HTML for the Nokia 9000i Communicator should be based on the HTML 3.2 DTD. There are some minor exceptions and limitations which must be taken into account. These and other design suggestions will be discussed in this document.

The browser parser in the Nokia 9000i Communicator is not strict and will not attempt to interpret HTML tags it does not support. This allows a developer to create multi-use pages for various browsers. Note that the basic screen and graphic design for the Nokia 9000i Communicator is radically different from a desktop computer To maximise the properties of both platforms, WWW page versions should be created for both the Nokia 9000i Communicator and PC platforms. HTML comments, excessive white space, non-usable tags, and heavy graphics should be avoided to ensure maximum download speed.

3. PAGE LAYOUT CONSIDERATIONS

The 9000i Communicator screen measures 115 X 36 millimetres and displays 640 X 200 pixels with 8-level greyscale. The area displaying WWW-page content is 540 X 200 pixels, as a part of the screen is covered by the browser options and window.

3.1 The Text

The standard text size is 12 points, with support for both mono-spaced and variable-spaced typefaces. Underline, bold and italics styles are also supported. All text links are displayed as underlined. All levels of headings (H1-H6) are supported. Text to be read first should be formatted to fit on the first screen of the page.

Note that preformatted text (<PRE> tag) should be avoided as the user cannot resize the window of the browser. Approximately 75 characters fit on a single line when the basic text size is used. This is dependent on which letters are in the text (i's are thinner than m's).

Underlined text should not be used, since the Nokia 9000i Communicator underlines all links. Underlined text, therefore, appears as a link to the user.

When displaying pre-sized text, lines which are too long for the screen continue onto the next line making all the text available to the reader.

It is not useful to use pictures as bullets when making lists. This can mix the list up and could cause the user wonder what the pictures are for if they are not auto-loading images.

Copyright©Nokia Mobile Phones 1999

3.2 Tables

The Nokia 9000i Communicator Browser supports tables. All tables on the web page are displayed within the limitations of the Nokia 9000i Communicator screen. If a table is too wide for the screen, the lines on the table will continue onto the next line. Tables that are too wide may make it difficult for the user to read the information. The Nokia 9000i Communicator does not support any attributes, for example the width, in the table. If the table contains anything else besides text and URL's (such as input fields), the Nokia 9000i Communicator will not show it as a table. Therefore columns may not be straight.

3.3 Frames

All frames are displayed like Lynx, the text based browser, shows them. Each frame will be displayed as a link. If a web page has four frames, the Nokia 9000i Communicator will show four corresponding links. When a link is selected, it will take the browser to a new page which shows the content of the frame chosen.

3.4 Movement Within a Page

The user moves from one discrete link to another by using the scroll keys on the Nokia 9000i Communicator. The scroll keys move the browser to the next line or next hyperlink. The active area of the page also changes accordingly. The **Chr** and scroll keys can be used to scroll a full screen of material at once. There is no cursor for continuous scrolling through the page. Since free movement within a page is restricted, links should be carefully placed. Hierarchical pages are easier for the user to navigate than a single long page.

3.5 Hierarchy

A good rule is that a page should not have more than five hyperlinks unless it is a selection menu listed with proper sub-headings. A maximum of three hierarchical levels are recommended for casual browsing. If more than three hierarchical levels are required, the designer should ensure easy navigation between the levels. This is especially important in sub-categorised hierarchies of three or more levels. Give the user a chance to go back easily to a sub-category home page as well as to the main home page. Again, avoid long pages as downloading and navigating them can be slow.

4. GRAPHICS CONSIDERATIONS

The graphics display attributes of the Nokia 9000i Communicator should be taken into account when incorporating graphic images. In addition to the size and depth attributes of the display, other important considerations are the communication speed of the browser, the speed of the HTTP protocol, and the use of image maps (ISMAP). When displaying paragraph text, approximately 75 characters can be displayed. Use the **ALT** attribute to specify a text string that the browser can display as an alternative to the in-line image.

4.1 Display Attributes

Pre-rasterizing of all pictures with more than 8 shades of gray is recommended. A stochastic raster with 8 shades of gray works best in most cases. Images with large uniform color areas look better than heavily screened images. Images place horizontally in a normal-sized screen (desktop or laptop PC) will be displayed vertically on the Nokia 9000i Communicator. Pictures can be loaded faster using RLE compression, which is important because of the transfer rate.

An external picture should not be larger than 570 X 200 pixels, because this size fills the whole screen. The maximum dimensions for inline pictures are 540 X 200 pixels. If a picture exceeds the maximum width, the picture will be zoomed out using standard factors (1:2, 1:3, etc.). For example, if the inline image width is 541 pixels it will

Copyright©Nokia Mobile Phones 1999

be zoomed out using the factor of 1:2 and be displayed as 270 pixels wide. An image with a 540 pixel width will be shown full-size using the entire screen width.

GIF and JPG formats are supported, but progressive JPEG compression should not be used. A maximum of four images per page is recommended. General image size should not exceed 10 kilobytes. Since a user can turn off image auto-loading, it is advisable to warn the user if you are offering a graphics-intensive page.

4.2 Data Transfer Speed Considerations

The HTTP protocol specifies a "slow start", which slows down the start of each HTTP transfer. The HTTP protocol is also connectionless, requiring all images on a page to be retrieved with their own HTTP request. Each request takes time to execute due to negotiation overhead of the protocol. Considering the data transfer speed of the Nokia 9000i Communicator (9600 bit/s), the number of images on a page should be evaluated carefully and all image sizes should be kept to a minimum. It should not take more than 10 seconds to fetch and display a typical page on the Nokia 9000i Communicator browser.

It is often better to use one large image map rather than separate images, because one image loads faster than several smaller images. Since image maps are somewhat slower to navigate than text links, they should only be used where needed.

5. MULTIMEDIA CONSIDERATIONS

The browser does not currently support sound or moving pictures (video or server push/client pull). A page designed specifically for the Nokia 9000i Communicator platform should not offer these multimedia data types.

6. LINK CONSIDERATIONS

All links are displayed as underlined text. To avoid confusion between links and other text, do not use underlining for text emphasis. Note that the emphasis tag (<EM>) may also produce an underlining effect for the text emphasised.

Link placement should allow users to clearly distinguish between links on the page. For example, two short words (links) side-by-side may not appear as separate links to the user. Links that go semantically together should usually be placed so that the user does not have to scroll down to the next screen in order to access the next link.

Links that together form a set of choices, from which the user selects one link, should all be visible at the same time on the screen. This helps the user to see the hyperlink options in a glance, without having to scroll up and down the page. The chance that a link will not be noticed is reduced if links are grouped properly.

The mail-to HREF-link is supported, but Nokia 9000i Communicator does not support other data transfer protocols (i.e. wais, ftp, gopher) and they should not be offered. If there is a need for these services, an http gateway should be set up to provide these services for the user.

The user can keep a list of personal bookmarks on the Nokia 9000i Communicator, but this capability should not be used to force the user to add new links to the list in order to properly navigate a certain WWW hierarchy.

7. OTHER CONSIDERATIONS

The browser utilises a built-in cache to temporarily store the images and HTML of WWW-pages. This can be used to present the same images on different pages without constant reloading.

Copyright©Nokia Mobile Phones 1999

Authentication (inserting a name and password in a dialog) is also supported and can be used. Forms or dialogs requiring heavy text input should be avoided so the user is not overwhelmed with data entry. Users are likely to avoid pages that are too cumbersome to use.

For best results, we recommend providing links to pages specifically designed for the Nokia 9000i Communicator browser, as well as other browsers, based on the browser identification information which can be queried with the HTTP protocol. Pages should be optimised with the appropriate level of HTML DTD, graphics, and links for each browser. When designed properly, these pages offer maximum usability and can be used as templates for the creation of additional pages. Templates allow the automatic generation of additional pages with similar design elements and functions. Changes to the browser can be accommodated by changes to the template, rather than to all of the individual pages created for the browser.

The Nokia 9000i Communicator browser name is "Nokia-Communicator-WWW-Browser/2.0 (Geos 3.0 Nokia-9000i)". The browser can identify itself by replying to the HTTP_USER_AGENT command. To ensure that users receive pages that are compatible with the Nokia 9000i Communicator, use a script that checks the HTTP_USER_AGENT and returns the Nokia 9000i Communicator-optimised pages.

8. CHECKLIST

A list of the major guidelines for designing WWW pages for the Nokia 9000i Communicator is offered here as a tool for checking page sketches or final designs. This checklist should be used each time new pages are designed, or existing pages are modified. When designing pages for the first time, an HTML manual [Tilton, 1995] and WWW design style guide [Lynch, 1995] should be consulted first.

8.1 Graphics

- Use only HTML 3.2. Limitations are listed in this document.
- The maximum file size of a single image is 10 kB.
- Use a maximum of four images per page.
- Images have been reduced to 8 grays or less.
- The maximum image dimensions are 540 X 200 pixels.
- Do not use progressive JPEG compression on images.
- Horizontally placed images can be displayed vertically.
- The ALT attribute is used with in-line images.

8.2 Text

- Underlining is not used for text emphasis.
- Most important text is visible at the top of the screen.

8.3 HTML 3.2 DTD Commands Not supported By Nokia 9000i Communicator Browser

- APPLET element
- BASE element
- BASEFONT element
- BIG element
- CENTER element
- DIV element
- FONT element
- ISINDEX element
- LINK element
- META element
- SCRIPT element
- SMALL element

Copyright©Nokia Mobile Phones 1999

- STRIKE element
- STYLE element
- SUB element
- SUP element
- U element
- Attribute type = file in form input elements
- Attributes in A element: rel, rev
- Attributes in BODY element: bgcolor, text, link, vlink, alink, background
- Attribute in BR element: clear
- Attribute in CAPTION element: align
- Attributes in HR element: align, noshade, size, width
- Attributes in IMG element: align, width, height, border, hspace, vspace
- Attributes in OL element: type, compact
- Attribute in PRE element: width
- Attribute in SELECT element: size
- Attributes in TABLE element: align, border, cellspacing, cellpadding
- Attribute in TD element: nowrap, rowspan, colspan, align, valign
- Attribute in TH element: nowrap, rowspan, colspan, align, valign
- Attributes in TR element: align, valign
- Attributes in UL element: type, compact

8.4 Hierarchy

- No more than five major links on a page (unless with lists)
- No more than three major levels of hierarchy (unless the hierarchy is categorized into sub-hierarchies)
- Navigation back to the home page and sub-category home page is available.

8.5 Links

- Links are grouped to enable selection without scrolling
- Links should be visually separate from each other

8.6 Usability

- Each page takes about 10 seconds to load and display
- No links that point to multimedia data types

8.7 Browser Identification

- The page identifies the 9000i browser and uses an optimised layout template.

Copyright©Nokia Mobile Phones 1999

9. REFERENCES

[GO, 1992] PenPoint User Interface Design Reference. GO Corporation, Addison-Wesley, 1992

[WebTechs, 1996] Web Techs HTML Validation Service. *http://www.webtechs.com/html-val-svc/*

[Lynch & Horton, 1997] Yale C/AIM Web Style Guide. Patrick J. Lynch and Sarah Horton, 1995. *http://info.med.yale.edu/caim/manual/index.html*

[REC html32] HTML 3.2 Reference Specification, 1996. *http://www.w3.org/TR/REC-html32.html*

[Tilton, 1995] Composing Good HTML, James Tilton, 1995. *http://www.cs.cmu.edu/~tilt/cgh/*

Copyright©Nokia Mobile Phones 1999